

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences
DEGREE IN ENVIRONMENTAL HEALTH
MAIN EXAMINATION PAPER 2013

TITLE OF PAPER : INDUSTRIAL HYGIENE AND ASPECTS OF PLANT OPERATION II

COURSE CODE : EHS 563

DURATION : 2 HOURS

MARKS : 100 MARK

INSTRUCTIONS :

- READ THE QUESTIONS & INSTRUCTIONS CAREFULLY**
- ANSWER ALL FOUR QUESTIONS**
- EACH QUESTION CARRIES 25 MARKS**
- WRITE NEATLY & CLEARLY**
- NO PAPER SHOULD BE BROUGHT INTO NOR OUT OF THE EXAMINATION ROOM**
- BEGIN EACH QUESTION ON A SEPARATE SHEET OF PAPER**

DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR

Answer any 4 questions**Question 1**

- a) Define light [2 Marks]
- b) State the types of glare [3 Marks]
- c) As a safety officer how can you ensure that the lighting in the office environment is **safe** and free from **health** hazards. [10 Marks]
- d) Outline the effects of light (**low** and **high** intensity) on the human eye. [10 Marks]

Question 2

- a) Define the two different types of vibration and give examples [4 Marks]
- b) Outline the adverse effects of vibration to the **health** and **safety** of the worker [10 Marks]
- c) Give four (4) factors that contribute to the increase of the adverse health effects of vibration? [8 Marks]
- d) Outline possible vibration exposure control measures. [3 Marks]

Question 3

- a) What is Fire? [3 Marks]
- b) Give 3 major strategies of extinguishing fire. [6 Marks]
- c) Describe 4 types of extinguishers [8 Marks]
- d) Discuss the Reactive measures that have to be in place to cater for a fire outbreak [8 Marks]

Question 4

- a) In relation to radiation, explain the meaning of **four** of the following:
- Sievert
 - Non-stochastic effect
 - Shielding
 - Film badge
 - Stochastic effect
 - Ionizing radiation
 - Non ionizing radiation

[12 Marks]

b) Explain why ionizing and non-ionizing radiation should be regarded as a hazard to health. [10 Marks]

c) What measures would you recommend to reduce the exposure of a worker who uses a source of x-rays at work? [3 Marks]

Question 5

a) In relation to thermal environment explain **three** of the following:

- Psychrometry
- Temperature
- Mean radiant temperature
- Thermometer
- Humidity

[9 Marks]

b) Explain the factors, which influence the thermal comfort of workers, and how the body tries to cope with cold working conditions. [8 Marks]

c) For heat to be exchanged between the inside and outside of the body there should be a normal heat transfer mechanism. State the four (4) transfer mechanisms that should take place. [8 Marks]